Assignment- II

8) $f(x) = x^2 + 3x + 10$

*) step 1+ intialization

$a = 1$, $epoch = 2$, $\eta = 0.2$

iteration 1

$$\frac{\partial f}{\partial x} = ax^3 + 6x = 10$$

$$\partial x = -\eta \frac{\partial f}{\partial x} = -(0.2)(10) = -2$$

$$x = x + \partial x = 1 - 2 = -1 \quad x = -1$$

iteration 2

$$\frac{\partial f}{\partial x} = ax^3 + 6x = -10$$

$$\partial x = -\eta \frac{\partial f}{\partial x} = -(0.2)(-10) = 2$$

$$x = x + \partial x = -1 + 2 = 1$$

$$x = 1$$